NEW CLAIMS 11-23

11. A method for guiding and supporting a thin sheet metal or metal strip (1) during transport across a conveying device (10) and through drums selected from the group consisting of a transport drum and a blade carrier drum during, before or after a cutting process carried out by shears (3), the method comprising the steps of:

guiding a liquid or gaseous medium under pressure through supply channels (4) in an interior of the drums to jet nozzles (5) at a periphery of the drums (7, 8) and producting jet bundles (2, 2') of the liquid or gaseous medium exiting from the jet nozzles (5);

loading at a slant or at a substantially perpendicular angle relative to the sheet metal or strip (1) at least an underside of the sheet metal or strip (1) with the jet bundles (2, 2') before and/or behind support areas of the drums (7, 8) or as closely as possible adjacent to blades (6) provided on the blade carrier drums (8) and thereby supporting and guiding the sheet metal or strip (1) by impulse energy provided by the jet bundles (2, 2');

employing a rotary valve (9) and limiting the jet bundles (2, 2') oriented against the sheet matal or metal strip (1) with the rotary valve (9) to a limitable angular position of the drums (7, 8).

12. The method according to claim 11, wherein the rotary valve (9) is arranged at an end face of the drums (7, 8).

13. The method according to claim 11, further comprising the step of detecting a strip head or a strip cut and loading the strip head or the strip cut only briefly with the jet bundles (2, 2').

14. The method according to claim 11, wherein the jet nozzles of the transport drums arranged on a rolling table are briefly successively loaded with the liquid or gaseous medium during a pass of the strip head through the transport drums.

15. The method according to claim 11, wherein the shears are chisel shears having one of the blade carrier drums (8) provided with a cutting chisel (11) and a counter drum (8') formed as an anvil, wherein the sheet metal or strip (1) to be cut is loaded with at least one of the jet bundles (2, 2') out of the blade carrier drum (8) and the counter drum (8'), respectively.

16. The method according to claim 15, wherein the jet bundles (2, 2') load the sheet metal or metal strip from above and below at least one location selected before the cutting plane (y-y), before and behind the cutting plane (y-y), or behind the cutting plane (y-y).

17. The method according to claim 11, wherein the shears are shearing-off shears (13) provided with the blade carrier drums (8, 8') each having a blade (6, 6') having oppositely positioned edges, wherein the jet bundles (2, 2') load the sheet metal or metal strip from above and below at least one location selected before the cutting plane (y-y), before and behind the cutting plane (y-y), or behind the cutting plane (y-y).

18. The method according to claim 15, further comprising the steps of:

determining entry of a strip head (16) of the sheet metal or the metal strip (1) in the area of a guide wedge (15) arranged stationarily upstream of the chisel shears (3) and determining an advancing speed of the strip head (16) by a signaling device (19);

arranging at least one row of jet nozzles (5) in the guide wedge (15) and loading and guiding the strip head (16) from below by orienting the jet nozzles (5) such that jet bundles (2´) exiting from the jet nozzles (5) impact approximately perpendicularly against the sheet metal or strip (1).

19. A device for guiding and supporting a thin sheet metal or metal strip (1) for performing the method according to claim 11, the device comprising:

a conveying device (10) for the sheet metal or metal strip;

drums selected from the group consisting of transport drums and blade carrier drums (7, 8);

the drums having a periphery provided with jet nozzles (5) arranged in at least one row parallel to an axis of the drums, respectively;

wherein the drums have an interior and supply channels (4) arranged in the interior, respectively, wherein the supply channels (4) are configured to be connected to a source (25) of a medium to be supplied under pressure, wherein the source (25) is provided external to the drums (7,8);

wherein the jet nozzles are connected with connecting members (21, 21´) to the supply channels (4) and, when loaded with the medium, are oriented against at least one of a top surface and a bottom surface of the sheet metal or the metal strip;

at least one pump (22) and at least one rotary valve (9) arranged between the supply channels (4) and the source (25).

20. The device according to claim 19, wherein the rotary valve is arranged at an end face of the drums (7, 8), respectively.

21. The device according to claim 19, wherein the conveying device (10) is a rolling table (10), wherein the blade carrier drums form chisel shears (3), and wherein guide wedges (15) are arranged near the chisel shears and comprise jet nozzles (5) and supply channels (4) for the medium, the device further comprising:

a medium supply line (29) comprising a pressure pump, connecting the jet nozzles to the source (25);

a signaling device (19), monitoring entry of the sheet metal or metal strip, arranged above the sheet metal or metal strip (1), wherein the signaling device (19) is connected by a control signal line (26) to a motor of the pump (27) and communicates with the signal line (26) with the motor (28) of the pump (27).

22. The device according to claim 21, wherein a width of the jet nozzles (5) is adjustable.

23. The device according to claim 21, wherein the conveying device is a rolling table and wherein the jet nozzles are distributed radially on a periphery of the transport drums.